UNITED STATES PATENT AND TRADEMARK OFFICE

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10/058,252	01/29/2002	Alistair Neil Coles	1509-270	3542

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER
SELLERS, DANIEL R

ART UNIT	PAPER NUMBER
2615	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
mkraft@hp.com
ipa.mail@hp.com

	Application No.	Applicant(s)
	10/058,252	COLES ET AL.
Office Action Summary	Examiner	Art Unit	
	DANIEL R. SELLERS	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2007*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27 and 30-36* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-27 and 30-36* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *09 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments with respect to claims 1-27 and 30-36 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

3.   **Claims 1-5, 10, 15-21, 26, and 32-36** are rejected under 35 U.S.C. 103(a) as

being unpatentable over Connor (previously cited) in view of Hughes, US 7,245,710 B1.

4.   Regarding **claim 1**, Connor teaches an interactive audio system (Col. 5, lines 17-

29 and Fig. 5) comprising:

        an audio source (Fig. 5, unit 68);

        a playing terminal adapted to be coupled to the audio source by a data link (Fig.

5, unit 26);

        an audio transducer arrangement (Fig. 5, unit 74) and a user control device

adapted to be coupled to the playing terminal (Fig. 5, unit 68),

        wherein the audio source is arranged to transmit a plurality of audio components

to the playing terminal by the data link (Col. 2, lines 40-43, Fig. 1 and Fig. 2), each

audio component comprising audio data relating to *a different* audible sound *source* or *a*

different audio track (Col. 2, lines 40-47), the playing terminal being arranged to output,

via the audio transducer arrangement, the audible sound or track corresponding to each

audio component, by the audio transducer arrangement (Col. 4, lines 4-9), the user

control device being arranged to enable user-selection of one of the audio components

as a focus component based on the user selecting one of the audible sounds or tracks

being emitted _by_ the audio transducer (Col. 5, lines 17-29 and 53-58). However,

Connor does not teach a playing terminal, which can control the data rate of transmitted

data relating to each audio component.

Hughes, in a similar field, teaches a teleconferencing system having a

multichannel spatialized function (abstract). Specifically, Hughes teaches a

multichannel system, which allows bandwidth allocation with respect to a main speech

signal (col. 4, lines 16-29). It would have been obvious for one of ordinary skill in the art

at the time of the invention to combine the teachings of Connor and Hughes for the

purpose of saving bandwidth.

5.   Regarding **claim 2**, the further limitation of claim 1, Connor teaches HRTF

filtering (Col. 4, lines 29-43) and Hughes teaches that HRTF's allow spatial processing

audio components so as to add positional data, indicating a position in space relative to

the audio transducer, at which each audio component is to be perceived (col. 5, lines 8-

16).

6.   Regarding **claim 3**, the further limitation of claim 2, Connor teaches plural audio

transducers, where each of the audio transducers being at a different location relative to

a user location so a user can perceive the direction of sound from each transducer (Fig.

5, units 74 and 76). Hughes teaches positional data relating to (a) the three-

dimensional position in space at which the audible sound or track is to be perceived

(col. 5, lines 28-36). Connor teaches (b) an audio transducer associated with the focus component (col. 1, line 66 - col. 2, line 4), wherein the left and right transducers present the sound source at the center of the soundstage. Connor also teaches (c) an audio transducer associated with a component that is not a focus component (col. 2, lines 4-8), and Hughes teaches the focus component data rate being greater than the data rate of a component that is not a focus component (col. 4, lines 23-29).

7.   Regarding **claim 4**, the further limitation of claim 1, it is inherent that the data rate is defined by a transmission bit-rate, and the combination teaches that a playing terminal is arranged to set the bit-rate of the focus component (Hughes, col. 4, lines 23-29). It is obvious to use first and second different predetermined bit-rates, wherein conventional high fidelity audio is presented with broadband signals encompassing 20 Hz to 20 kHz and King, as evidence, teaches at least 0 - 13 kHz. It would have been obvious to use a predetermined bit-rate, such as a constant bit-rate or variable bit-rate, corresponding to each bandwidth requirement, where the high fidelity requirement is used for the focus component and King's requirement is used for the non-focus components.

8.   Regarding **claim 5**, the further limitation of claim 4, see the preceding argument with respect to claim 4. It is inherent that the higher quality audio reproduction requirement for the focus component corresponds to a higher bit-rate, such as a higher constant bit-rate or higher average bit-rate.

9.   Regarding **claim 10**, the further limitation of claim 1, see the preceding argument

with respect to claim 1. Connor teaches a user control device that uses a button (col. 5,

lines 10-16).

10.   Regarding **claim 15**, see the preceding argument with respect to claim 1. The

combination teaches these features.

11.   Regarding **claim 16**, see the preceding argument with respect to claim 1. The

combination teaches these features. Connor teaches two ports, wherein one receives a

plurality of audio sources (col. 1, 11-19) and the second port receives user selection

commands (col. 5, lines 7-29). It is inherent that a processing means processes the

information received at the first and second ports.

12.   Regarding **claim 17**, the further limitation of claim 16, see the preceding

argument with respect to claim 3. The combination teaches spatialized audio with these

features.

13.   Regarding **claim 18**, see the preceding argument with respect to claim 1. The

combination teaches these features, wherein a control signal is sent to control the data

rate of transmitted data by either the transmitter or receiver (Hughes, col. 3, line 44 -

col. 4, line 15).

14.   Regarding **claim 19**, the further limitation of claim 18, see the preceding

argument with respect to claim 3. The combination teaches spatialized audio with these

features.

15.   Regarding **claim 20**, the further limitation of claim 19, see the preceding

argument with respect to claim 3. The combination teaches positional data relating to a

three dimensional space for spatial processing.

16.   Regarding **claim 21**, the further limitation of claim 18, see the preceding

argument with respect to claim 5. The combination teaches the transmission of the

focus element at a higher bit-rate.

17.   Regarding **claim 26**, the further limitation of claim 18, see the preceding

argument with respect to claim 10. The combination teaches a user control device that

uses a button.

18.   Regarding **claim 32**, see the preceding argument with respect to claims 1 and

18. The combination teaches these features.

19.   Regarding **claim 33**, see the preceding argument with respect to claims 1 and

18. The combination teaches these features.

20.   Regarding **claim 34**, the further limitation of claim 1, see the preceding argument

with respect to claims 1 and 3. The combination teaches that plural sounds can be

transmitted at higher bit-rates than the non-focus, or unimportant, audio components.

21.   Regarding **claim 35**, the further limitation of claim 15, see the preceding

argument with respect to claims 15 and 34. The combination teaches these features.

22.   Regarding **claim 36**, the further limitation of claim 18, see the preceding

argument with respect to claims 18 and 34. The combination teaches these features.

23.   **Claims 6-7, 14, 22-23, and 30-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Connor and Hughes as applied to claim 1 above, and further in view of Slezak.

24.   Regarding **claim 6**, the further limitation of claim 1, the combination of Connor and Hughes teaches a playing terminal that is arranged to control the data rate of transmitted data sent from the audio source by causing the audio source to stream the focus component at a predetermined bit-rate. However they do no teach a non-continuous data burst, or fraction, of audio data relating to the sound or track to be transmitted.

        Slezak teaches an interactive audio system with spatialized audio (col. 5, lines 43-65, fig. 3, col. 7, lines 21-36, and fig. 5), wherein periodic audible tones, or chimes are played on the interactive system (col. 7, lines 37-54). It is obvious that a simulated sound source tracking the position of a user with respect to other sound sources is not the focus track, therefore the prior combination in view of Slezak teaches a non-continuous data burst, or a periodic chime, of audio data relating to at least one non-focus sound or track. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Connor, Hughes, and Slezak for the purpose of tracking a user's position audibly.

25.   Regarding **claim 7**, the further limitation of claim 6, see the preceding argument with respect to claim 6. The combination teaches the reception of a non-focus component, wherein the component is a burst of audio data. It is inherent that the audio

data is stored, at least in a buffer or a cache, subsequent to replaying at the playing

terminal.

26.   Regarding **claim 14**, the further limitation of claim 1, see the preceding argument

with respect to claim 1. Slezak teaches that the user can browse sub-elements using

the spatialized audio (Col. 7, line 62 – Col. 8, line 17).

27.   Regarding **claim 22**, the further limitation of claim 18, see the preceding

argument with respect to claim 6. The combination teaches the transmission of non-

continuous burst data relating to the non-focus component.

28.   Regarding **claim 23**, the further limitation of claim 22, see the preceding

argument with respect to claim 7. It is inherent that the audio data is stored, at least in a

buffer or a cache, subsequent to replaying at the playing terminal.

29.   Regarding **claim 30**, the further limitation of claim 18, see the preceding

argument with respect to claim 14. The combination teaches the browsing of sub-

elements using the spatialized audio.

30.   Regarding **claim 31**, the further limitation of claim 18, see the preceding

argument with respect to claim 14. The combination teaches the use of hyperlinks.

31.   **Claims 8, 9, 24, and 25** are rejected under 35 U.S.C. 103(a) as being

unpatentable over the combination of Connor and Hughes as applied to claim 1 above,

and further in view of Kobayashi.

32.   Regarding **claim 8**, the further limitation of claim 3, see the preceding argument

with respect to claim 3. Kobayashi teaches a user interface that is mounted on the body

(p.11, design of head interface paragraphs and p. 13, head interface paragraph). The combination of Connor and Hughes teach the features of the parent claims, however they do not teach the use of head tracking or using a position sensor on a body part for user input. Kobayashi teaches an audio browser, and in one feature is the ability to track the users head movement for the purpose of bringing one of a plurality of sounds into focus within a three-dimensional soundscape. It would have been obvious for one of ordinary skill in the art to combine the teachings of Connor, Hughes, and Kobayashi for the purpose of audibly browsing the Internet using a more natural user interface. Kobayashi teaches that it is more natural for a user to turn their head towards the sound, on which the user wishes to focus their attention.

33.   Regarding **claim 9**, the further limitation of claim 8, see the preceding argument with respect to claim 8. In the combination, Kobayashi teaches the use of a head-mountable sensor.

34.   Regarding **claim 24**, the further limitation of claim 18, see the preceding argument with respect to claim 8. The combination teaches these features.

35.   Regarding **claim 25**, the further limitation of claim 24, see the preceding argument with respect to claim 9. The combination teaches these features.

36.   **Claims 11 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Connor and Hughes as applied to claim 1 above, and further in view of Frulla et al., USPN 6,424,357 (submitted in an IDS and hereinafter Frulla).

37.   Regarding **claim 11**, the further limitation of claim 1, the combination of Connor

and Hughes teach the features of the parent claim. However they do not teach the

feature of voice controlled operation. Frulla teaches a user interface that receives

audible commands and interprets them (col. 3, lines 56-63). It would have been

obvious for one of ordinary skill in the art at the time of the invention to combine the

teachings of Connor, Hughes, and Frulla for the purpose of hands free computing or for

allowing persons with locomotive disabilities to use the interface taught by Connor.

38.   Regarding **claim 27**, the further limitation of claim 18, see the preceding

argument with respect to claim 11. The combination teaches these features.

39.   **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable

over the combination of Connor and Hughes as applied to claim 1 above, and further in

view of well-known prior art.

40.   Regarding **claim 12**, the further limitation of claim 1, see the preceding argument

with respect to claim 1. The combination teaches telephone links (Connor, Fig. 5, units

60, 62, 64, and 66), but it does not teach wireless. The Office takes Official Notice that

it is well-known to utilize wireless signals in telephone systems for the purpose of

mobility. It would have been obvious for one of ordinary skill in the art at the time of the

invention to combine the teachings of Connor, Hughes, and the well-known art for the

purpose of added mobility.

41.   Regarding **claim 13**, the further limitation of claim 12, see the preceding

argument with respect to claim 12. Connor teaches an interactive audio spatialization

system using an example of a telephonic conference call and it is well known that a

mobile telephone connection is a wireless device in a radio communication system,

therefore the combination teaches this feature.

Conclusion

42.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

        Dutkovich, USPN 4,176,252 - col. 2 teaches an interactive audio system, which

employs audio spatialization; and

        Yamazaki, USPN 6,343,130 - col. 2, lines 38-58 teaches a system, wherein a

measure of a CPU's performance determines between a high or low precision sound

reproduction.

        Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DANIEL R. SELLERS whose telephone number is

(571)272-7528. The examiner can normally be reached on Monday to Friday, 9am to

5:30pm.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Suhan Ni can be reached on (571)272-7505. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel R. Sellers/
Examiner, Art Unit 2615

/Suhan Ni/
Primary Examiner, Art Unit 2614